COVER SHEET

TEST PROCEDURE PREPARATION:

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TDA Organization and Code

TEST PROCEDURE REVIEW:

Reviewed by: NSWC PHD DAMNECK CODE 6D10 Date: 4 JAN 99
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DOCUMENTATION CERTIFICATION:

Approved by: _____ Date:
TDD Organization and Code

REVISION RECORD

REV/CHG	DESCRIPTION	Approval INITIAL	Approval DATE
-	Original Issue	FES	18 Dec 98

LIST OF EFFECTIVE PAGES

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TEST OUTLINE

1. OBJECTIVE:

   To verify that the 63812-302101 Decoder, RADDS to Parallel Digital Theta (63812-302101 Decoder) is operating properly with interfacing equipment.

2. ESTIMATED TESTING TIME:

   1 hour

3. REFERENCES:

   SE650-AQ-MMO-A10, Technical Manual, Operation and Maintenance for the Dual Signal Data Converter CV-3989(V)1/SP, EC-7, Addendum 1

4. TEST OR SUPPORT EQUIPMENT AND MATERIAL:

GENERIC NAME	QUANTITY	IDENTIFYING INFORMATION
a. Oscilloscope	1	SCAT 4308 or equivalent
b. Oscilloscope, Storage	1	SCAT 4309 or equivalent
c. Terminator, 75 Ohms	1	SCAT 4596 or equivalent
d. T-Connector	1	BNC

5. COMPUTER PROGRAMS REQUIRED:

   None

6. PREREQUISITES:

   a. 45011-3-064, AN/SPQ-14 ASDS Digital Theta Decoder ILO
   b. 45011-5-055, CV-3989(V)1/SP Analog to Digital Converter Operability

7. SPECIAL CONDITIONS AND SERVICES:

   115 VAC, 1 ϕ, 60 Hz Power

8. EQUIPMENT INVOLVED IN TEST:

   a. 63812-302101 Decoder
   b. CV-3989(V)1/SP Dual Signal Data Converter
   c. Ships selected radar

TEST OUTLINE

9. CONFIGURATION:

No field changes required to run this test.

10. METHOD:

A Radar Display and Distribution System (RADDS) Data Stream input signal will be decoded with various levels and types of output signals to be verified.

11. STATION ASSIGNMENTS:

STATION	NO. PERSONNEL	COMMENTS
63812-302101 Decoder	1 Electronic Technician	Performs Operability Test
Selected Radar	1 Operator	Operate Radar

SAFETY INSTRUCTIONS

a. The operation of this equipment involves the use of high voltages that are dangerous to life. Extreme caution must be exercised at all times. Do not work on open or disassembled units when power is applied.

b. Comply with ships regulations and safety precautions prior to antenna rotation and radiation. Remain clear of swing radius of rotating antennas.

c. Test personnel will strictly adhere to all safety precautions including, but not limited to, all Cautions and Warnings contained in this test procedure and applicable documents.

INITIAL CONDITIONS AND SETUP

STEP	STATION	INSTRUCTIONS
		NOTE Use a CV-3989(V)1/SP Dual Signal Data Converter fed from an operational radar.
1	63812-302101 Decoder	Ensure a proper RADDS Data Stream is being supplied to RADDS 1 (J2), RADDS 2 (J3), and RADDS 3 (J4) input connectors for 63812-302101 Decoder modules (Part Number 302102-1) under test.

TESTING STEPS

DECODER INDICATORS

STEP	STATION	INSTRUCTIONS
1	63812-302101 Decoder	Set AC POWER switch to ON and observe POWER ON indicator is lit.
2	63812-302101 Decoder	Observe the following module indicators are lit on all modules. +5V -15V +24V
3	Converter	Supply a RADDS Data Stream from a Signal Data Converter or other source to input connector 1A1J2 of the 63812-302101 Decoder.
4	63812-302101 Decoder	Verify RADDS Yellow Light Emitting Diode (LED) on module 1A1A1 (Part Number 302102-1) is lit. RECORD on Test Data Recording Sheet.
5	63812-302101 Decoder	If True Bearing is present on RADDS Data Stream, proceed to next step. If True Bearing is not present on RADDS Data Stream and if able to supply True Bearing on RADDS Data Stream, turn on True Bearing.
6	63812-302101 Decoder	Verify True Bearing (LB) Green LED is lit. RECORD on Test Data Recording Sheet.
7	63812-302101 Decoder	If module 1A1A2 (Part Number 302102-1) is present, move RADDS Data Stream source to 1A1J3.
8		Repeat steps 4 through 6 for module 1A1A2 (Part Number 302102-1). RECORD on Test Data Recording Sheet.
9	63812-302101 Decoder	If module 1A1A3 (Part Number 302102-1) is present, move RADDS Data Stream source to 1A1J4.

TESTING STEPS

STEP	STATION	INSTRUCTIONS
10		Repeat steps 4 through 6 for module 1A1A3 (Part Number 302102-1). RECORD on Test Data Recording Sheet.

DECODER OUTPUTS

STEP	STATION	INSTRUCTIONS
11	63812-302101 Decoder	Disconnect TM output cable connected to (J1) on module 1A1A1 (Part Number 302102-1).
12	63812-302101 Decoder	Using an oscilloscope, connect a 75-Ohm terminator to one side of a T-Connector and connect the other side to jack (J1) on module 1A1A1 (Part Number 302102-1).
13	63812-302101 Decoder	Ensure output signal from J1 is present and has a pulse amplitude of +20 ± 5 VDC, and a duration of 4 μs ± 400 ns. RECORD on Test Data Recording Sheet.
14	63812-302101 Decoder	Reconnect TM output cable to J1 on module 1A1A1 (Part Number 302102-1).
15		Repeat steps 11 through 14 for each module (Part Number 302102-1) installed in 1A1A2 and 1A1A3.
16	63812-302101 Decoder	Disconnect TE output cable connected to (J2) on module 1A1A1 (Part Number 302102-1).
17	63812-302101 Decoder	Using an oscilloscope, connect a 75-Ohm terminator to one side of a T-Connector and connect the other side to jack (J2) on module 1A1A1 (Part Number 302102-1).

TESTING STEPS

STEP	STATION	INSTRUCTIONS
18	63812-302101 Decoder	Ensure output signal from J2 is present and has a pulse amplitude of +20 ± 5 VDC, and a duration of 1 μs ± 200 ns. RECORD on Test Data Recording Sheet.
19	63812-302101 Decoder	Reconnect TE output cable to J2 on module 1A1A1 (Part Number 302102-1).
20		Repeat steps 16 through 19 for each module (Part Number 302102-1) installed in 1A1A2 and 1A1A3.
21	63812-302101 Decoder	Disconnect North Crossing output cable connected to (J3) on module 1A1A1 (Part Number 302102-1).
22	63812-302101 Decoder	Using an oscilloscope, connect a 75-Ohm terminator to one side of a T-Connector and connect the other side to jack (J3) on module 1A1A1 (Part Number 302102-1). NOTE A storage Oscilloscope (SCAT 4309) will be necessary to view the North Crossing Pulses.
23	63812-302101 Decoder	Ensure output signal from J3 is present and has a pulse amplitude of +20 ± 5 VDC, and a duration of 1.4 μs ± 400 ns. RECORD on Test Data Recording Sheet.
24	63812-302101 Decoder	Reconnect North Crossing output cable to J3 on module 1A1A1 (Part Number 302102-1).
25		Repeat steps 21 through 24 for each module (Part Number 302102-1) installed in 1A1A2 and 1A1A3.

SHUTDOWN AND SECURING

STEP	STATION	INSTRUCTIONS
1	63812-302101 Decoder	Set AC POWER switch to OFF position.

TEST DATA RECORDING

EQUIPMENT UNDER TEST

EQUIPMENT	SERIAL NO.
63812-302101 DECODER	_____

PREREQUISITES

a. 45011-3-064, AN/SPQ-14 ASDS Digital Theta Decoder ILO
b. 45011-5-055, CV-3989(V)1/SP Analog to Digital Converter Operability

Prerequisites Completed: ____ **Signature and Date:** _____

NOTE

Write "N/A" in ACTUAL RESULTS spaces for test sections where modules are not present in the Decoder under test.

TEST DATA RECORDING

STEP	TEST ELEMENT	EXPECTED RESULTS	ACTUAL RESULTS
	DECODER INDICATORS		
4	RADDS LED is Illuminated on Module 1A1A1	Lit (Yellow)	_____
6	TRUE BEARING (LB) LED is Illuminated on Module 1A1A1	Lit (Green)	_____
8	RADDS LED is Illuminated on Module 1A1A2	Lit (Yellow)	_____
	TRUE BEARING (LB) LED is Illuminated on Module 1A1A2	Lit (Green)	_____
10	RADDS LED is Illuminated on Module 1A1A3	Lit (Yellow)	_____
	TRUE BEARING (LB) LED is Illuminated on Module 1A1A3	Lit (Green)	_____

_____	_____	_____	_____
SHIP HULL NO.	TEST CONDUCTOR SIGNATURE	GOVERNMENT WITNESS SIGNATURE	DATE

TEST DATA RECORDING

STEP	TEST ELEMENT	EXPECTED RESULTS	ACTUAL RESULTS
	DECODER OUTPUTS		
13	TM (J1) OUTPUT TEST		
	1A1A1		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	4 µs	3.6 µs to 4.4 µs	_____ µs
	1A1A2		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	4 µs	3.6 µs to 4.4 µs	_____ µs
	1A1A3		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	4 µs	3.6 µs to 4.4 µs	_____ µs
18	TE (J2) OUTPUT TEST		
	1A1A1		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	1 µs	.8 µs to 1.2 µs	_____ µs
	1A1A2		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	1 µs	.8 µs to 1.2 µs	_____ µs
	1A1A3		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	1 µs	.8 µs to 1.2 µs	_____ µs

SHIP HULL NO.	TEST CONDUCTOR SIGNATURE	GOVERNMENT WITNESS SIGNATURE	DATE

TEST DATA RECORDING

STEP	TEST ELEMENT	EXPECTED RESULTS	ACTUAL RESULTS
23	North Crossing (J3) OUTPUT TEST		
	1A1A1		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	1.4 µs	1.0 µs to 1.8 µs	_____ µs
	1A1A2		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	1.4 µs	1.0 µs to 1.8 µs	_____ µs
	1A1A3		
	+20 VDC	+15.0 VDC to +25.0 VDC	_____VDC
	1.4 µs	1.0 µs to 1.8 µs	_____ µs

SHIP HULL NO.	TEST CONDUCTOR SIGNATURE	GOVERNMENT WITNESS SIGNATURE	DATE

TEST EQUIPMENT USED

List all test equipment utilized in the test including all general and specialized test equipment, special test cables, attenuators, and any other materials requiring calibration. Include extra sheets as necessary to identify all test equipment.

GENERIC NAME	MODEL	SERIAL NO.	CALIBRATION DUE DATE	REMARKS

SHIP HULL NO.	TEST CONDUCTOR SIGNATURE	GOVERNMENT WITNESS SIGNATURE	DATE

COMMENTS

This sheet is provided for the test conductor or Government witness to make appropriate comments including the following:

a. Visual observations of dynamic responses;
b. Erratic or unusual equipment behavior;
c. Operational or handling difficulties;
d. Procedural corrections;
e. Equipment malfunctions;
f. Discrepancies noted during test conduct; and,
g. Waivers including reference to authorization document, i.e., letter, message, etc.

Indicate if a Test Problem Report (TPR) was generated with respect to these or other problems.

SHIP HULL NO.	TEST CONDUCTOR SIGNATURE	GOVERNMENT WITNESS SIGNATURE	DATE